

Chelmsford Amateur Radio Society

Affiliated to the RSGB

President: Dick Brocks G3WHR

Secretary: Charles Shelton G0GJS

Club Call Sign: G0MWT

Chairman: John Bowen G8DET

Treasurer: Brian Thwaites G3CVI

Newsletter No. 401

June 1999

The June Meeting

By long standing tradition the June meeting is devoted to the constructor's competition. We have given several warnings to get cracking with your entry, that is if you read your Newsletters! Of course you do! You have got just under a week to finish your masterpiece. To make life easy there are no rules concerning the entries, or at least none that have ever been formalised! Ideally, it should be relevant to amateur radio but if that is somewhat too restrictive, then vaguely electronic will suffice. But don't let that put you off. In fact anything you have made will be welcome, as Ralph G3NAA found to his surprise last year!

All we ask is that you provide a few notes on a card about your entry (to help the judges) and be prepared to give a few words to the assembled company so they know what you've made! One word of warning though. Any constructor spotted heading towards the bar with the judges will be disqualified. Sorry, but we must have one rule!

Come along, with entry or not, to the **MASC at 7-30pm on Tuesday 1st June** when our **Chairman John G8DET** will introduce the judges', outline procedures and wet your appetites with details of the cash prizes. No doubt, he will update us with his latest computer developments. By the way, there is truth in the rumour that he has been heard on 2m.

Please support **Ela's Club Raffle**. It goes a long way to paying the rent and you might even win a prize!

Just one more thing. Please let the judges make a clean getaway after delivering their verdicts!

DATES FOR YOUR DIARY

May 30 East Suffolk W'less Revival The Hollies. Ipswich.
May 30 Waters & Stanton Open Day Hockley.
June 1 CARS Meeting. Constructors Competition MASC.
June 13 Elvaston Castle Nat. Radio Rally Elvaston, Derby.
June 27 Longleat Amateur Radio Rally Longleat, Wilts.
July 6. CARS Meeting. Table-Top Sale MASC.

CARS New Novice

Last month we congratulated Peter Mead on passing the Novice Exam. It is now our pleasure to record that the postman finally delivered the white envelope for which he had been waiting so patiently! Peter is now 2E1HGG. Congratulations Peter!

CARS Christmas Dinner.

We haven't worked out how many shopping days there are 'till Christmas but we can tell you that our Christmas Dinner has been booked for Thursday 9th. December. David M0BQC will be pleased to reserve seats for you. The Beehive has been enlarged so there will be more places available

The Club Nets

The Net Controller for June is Chris G0IPU.

The Club Nets are as detailed in previous N/L's.

Situation Vacant

It has been suggested that our Club should follow the example of other clubs and have a Web page. The Committee are looking for a Member to run it and become the Club Webmaster. Any volunteers please?

The July Table-Top Sale

Look through your shack, there must be something you don't need any longer which might be useful to others. Keep junky items for the Junk Sale (Jan. 2000). Members will not be charged for a table but a small contribution to Club funds would be appreciated, particularly if you've had a successful evening. The event has been widely advertised throughout the county and it is hoped that this new Club venture will be a resounding success.

Give us your support on Tuesday July 6th.

International Marconi Day - Brian G3CVI

When the aerial crew arrived at the Museum there was a sprinkle of rain in the air and a fresh wind ruffled the surface of the weir outflow. The long grass was soaking wet and I for one was delighted when Carl (PEM) "volunteered" to go round the other side of the water with the long halyard and remote end of the aerial.

It was also Carl who did a "Pat" for us by heaving the leader-line over the power cables to enable the "roof crew" to haul taut at the inner end. The rest was easy since Tony (YTG) had drilled a couple of holes through the end wall above the rear door and lined them with insulating tubing. The feeder was cut (heart in mouth for a moment or two) and the ends passed through to be re-united with the inner part with "chocky-block" inserts. Tests proved that there was no change to the ASTU settings.

At 0100 BST on the Saturday morning, John (VMJ) and I started up the rig and within minutes the contacts came thick and fast just as in contests except we were at the other end of the pile-ups !!! Wonderful!!! On 40m we got into the DX quickly and logged 4N, UA6, N2, VE3, W2, TI2, XE1, K6 and so on until the D-layer began to shorten the skip when we moved to 80m where we had the bulk of the QSOs. Meanwhile Tony (YTG) and later Charles (GJS) made hay on 20m with Tony's vertical set-up on the flat roof. They logged VE, W9, PT, CO and all over the world and Europe on CW

When eventually John and I retired to bed at about 1030 BST the following operators had another fine set of QSO's to report and included Ken (G7RFT), Ralph (NAA), Malcolm (KGL), Wally (MCO) and Colin (TRM) who signed the log.

Hence at the end of the event we had close on 500 contacts in the book and I can vouch for the fact that in the thickest bit we were logging one every 27 seconds.

Several ops were on their first IMD and I aim to invite a couple of "new" ones at each event including the Museum Open Day so as to give many more folk a crack at the Club rig and tuning unit as well as the actual operating....both can be a little tricky if one is not familiar with their ways.

So, to all who in any way contributed to the success of the day, and particularly to our host, Geoff Bowles, here is a big THANK YOU on behalf of the organising club and ourselves.

Last Month's Meeting

A Gallimaufry of Antennas' - Tony G4YTG.

In introducing his subject, Tony explained that everything related to aerial design starts from the standard $1/2$ wave dipole; the $1/2$ wave being two $1/4$ wavelength transmission lines connected end to end.

He continued by pointing out that there is no such thing as an 'aerial gain' and then proceeded (twinkle in eyes!) to explain what the term means. It is used to represent a concentration of energy in one direction at the expense of another. An isotropic aerial radiates in all directions, although it is unattainable in practice. The $1/2$ wave dipole is said to have a gain of 2.4 dBs relative to the isotropic aerial. However there is a radiation re-distribution increasing in one plane with none in the other compared with the isotropic aerial, giving the well known dough-nut pattern of radiation..

At the operating frequency, the $1/4$ wavelength line input appears as an *Open Circuit* when the distant end is *Short Circuit*. Likewise, the input appears *Short Circuited* when the distant end is *Open Circuited*. Similarly, a distant end *Capacitor* appears as an *Inductor* and vice versa. Only when the distant end is *Correctly Terminated* does the input resistance equal its Characteristic Impedance.

The $1/2$ wave dipole has max current at the centre with voltage maxima at the 2 ends. This produces the classic doughnut field strength pattern where the concentration of energy produces the effect of Aerial Gain as explained above.

Using these principles Tony explained the operation of the J Pole, a variation being the Slim Jim, used by a number of amateurs in the audience. Aerials were also likened to women's hats; they all stick up in the air and blow down in a strong wind.

The $1/4$ wave aerial positioned above crossed radials produce an image effect which appears as a mirror, in effect doubling the operational length of the aerial.

Co-linears can be provided by fitting $1/4$ wave matching stubs between elements, which enhance the wave distribution.

The $1/4$ plus a $1/8$ matching stub produces a $5/8$ th wavelength aerial and is ideal for use on a car for 2m and 70cms.

The Quad aerial consists, basically, of a pair of stacked dipoles spaced one quarter wave apart. The ends of the top dipole are bent down, whilst the ends of the lower one are bent up and connected together (both high current ends) to form a square. The top adjacent ends are joined and the feed point is in to the lower dipole.

The action of the Yagi aerial which uses elements slightly longer and shorter (reflectors and directors) elements than the active dipole was explained with some very nifty transparencies. Likewise the Inverted Vee was also explained.

A discussion about Magnetic Loop aerials produced some statements from those who use them. Due to the high Q, the aerial can have a very high voltage present, enough to vaporise capacitors which do not have a sufficiently high breakdown voltage. It was felt prudent not to get too near them when running 100 watts or more TX power. Two or three loops are required to cover the HF band.

The Windom was an old Multiband aerial but with the disadvantage of radiating well on frequencies which were out of the Amateur Bands - exacerbating spurious transmissions.

Tony concluded his presentation with a number of designs of his own.

The audience was enthralled with his simple explanation of complex problems, all superbly presented. Thank you Tony.

Write-up by John G8DET - et alia!

A PRE WW2 Radio - Geoff G7KLV

It all came about quite by chance when I was talking to a neighbour about newsletters. He did one for his church and I confessed to being involved in amateur radio. That was it! One of his hobbies is French polishing and he was considering restoring the cabinet of a vintage radio but he said it would be much more rewarding if it could actually be made to work! Never volunteer for anything they say; being rather impetuous I couldn't resist offering my services!

Said radio was delivered a few days later complete with many years accumulation of dust. It was a Pye, type number unknown but definitely pre-war from the scale marking and the British 7-pin valve bases. There seemed to be a rather important chunk missing - the separate power unit! There were three electrolytics of early post-war vintage lashed to the speaker. It seemed quite obvious that the mains transformer had seen better days and had been discarded. The speaker had a wound field with a resistance of 2K so I assumed that the transformer would have to be a 350-0-350 type, with the speaker field acting as smoothing choke. This seemed to be confirmed by the 450 volt electrolytics. Searching through the 'junk box' I found a suitable transformer culled from a discarded Marconi Instruments signal generator. The set required 4 volts for the heaters so it was necessary to wind a resistance to drop down from 6 volts; an inch or so of electric fire element did the trick.

To cut a long story short I decided to use the electrolytics having first, as I thought, re-formed them. With power applied all seemed well for about ten minutes, a wet finger on the 'top' of the volume control gave a healthy hum, and then there was an almighty explosion. Luckily I was not in the direct line of fire! My 14 by 6 shed was completely filled with dense smoke and everything, including me, was covered with a mixture of shredded aluminium foil and tissue paper! The reservoir condenser had blown its end cap off and was just a hollow shell. Rather wisely, I decided not to use the other two condensers! I replaced the reservoir with a 'brick-built' paper job and found another electrolytic with a vent for the final smoothing! So far, so good!

The circuit was quite conventional, consisting of mixer, IF, double diode triode and output pentode and presumably a valve rectifier although as mentioned earlier the power supply was missing. The IF frequency was 120kHz. Low frequency IF's were quite common before the war and the more upmarket sets had bandpass tuning. This one had a single tuned circuit. L, M and short waves were provided as well as a 'gram' input.

The main feature of interest on this receiver, which set it apart from any other I had ever seen, was the front panel presentation, to be described later.

I eventually got it working.

Wait for the final instalment in the July newsletter!

Help...Help....Help

Can anyone help John Greenwood G3KRZ. He desperately needs one of those old mains plugs, the sort that used to plug into early electric smoothing irons. The sort he wants is 1-1.5ins. wide with two earthing spring clips, one on each side.

This is required to restore a piece of equipment for a disabled amateur. Please contact him on 01205-820583 if you can help.

Joint Editors

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Deadline for the July N/L is Tuesday 20th.June.